

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:

Shigeki WATANABE

Application No.:

Group Art Unit:

Filed: January 30, 2004

Examiner:

For: OPTICAL FIBER COMMUNICATION SYSTEM USING OPTICAL PHASE  
CONJUGATION AS WELL AS APPARATUS APPLICABLE TO THE SYSTEM AND  
METHOD OF PRODUCING THE SAME

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure provisions of 37 CFR § 1.56, there is hereby provided certain information which the Examiner may consider material to the examination of the subject U.S. patent application. It is requested that the Examiner make this information of record if it is deemed material to the examination of the subject application.

1. Enclosures accompanying this Information Disclosure Statement are:

- 1a. ☒ Form PTO-1449.
- 1b. ☐ Copies of IDS citations.
- 1c. ☐ An English language copy of search report(s) from a counterpart foreign application or a PCT International Search Report.
- 1d. ☐ English language translation (complete or relevant portion(s)) attached to each non-English language publication.
- 1e. ☐ Explanations of Relevancy of References (ATTACHMENT 1(e), hereto) for providing a concise explanation of each non-English publication.
- 1f. ☐ List of Copending Applications (ATTACHMENT 1(f), hereto).
- 1g. ☐ List of Additional Submitted Documents (ATTACHMENT 1(g), hereto).

2. ☒ This Information Disclosure Statement is filed under 37 CFR §1.97(b):

*(Check either Item 2a or 2b or 2c or 2d)*

- 2a. ☐ Within three months of the filing date of a national application other than a Continued Prosecution Application under § 1.53(d);
- 2b. ☐ Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application.
- 2c. ☒ Before the mailing of a first Office Action on the merits; or

- 2d. ☐ Before the mailing of a first Office Action after the filing of a Request for Continued Examination under § 1.114.
3. ☐ This Information Disclosure Statement is filed under 37 CFR § 1.97(c) after the period specified in paragraph 2 above but before the mailing date of any of a Final Office Action under § 1.113, a Notice of Allowance under § 1.311 or an action that otherwise closes prosecution in the application, AND
- (Check either Item 3a or 3b; Item 3b to be checked if any reference known for more than 3 months)*
- 3a. ☐ The §1.97(e) Statement in Item 5 below is applicable; OR
- 3b. ☐ The \$180.00 fee set forth in 37 C.F.R. §1.17(p) is:
- ☐ enclosed.
- ☐ to be charged to Deposit Account No. 19-3935.
4. ☐ This Information Disclosure Statement is filed under 37 CFR §1.97(d) after the period specified in paragraph 3 above, but on or before payment of the Issue Fee, AND
- 4a. ☐ The § 1.97(e) Statement in Item 5 below is applicable; AND
- 4b. ☐ The \$180.00 fee set forth in 37 C.F.R. §1.17(p) is:
- ☐ enclosed.
- ☐ to be charged to Deposit Account No. 19-3935.
5. ☐ Statement under § 1.97(e) (*applicable if Item 3a or Item 4a is checked*)
- (Check either Item 5a or 5b)*
- 5a. ☐ In accordance with 37 CFR § 1.97(e)(1), it is stated that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
- 5b. ☐ In accordance with 37 CFR § 1.97(e)(2), it is stated that no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known by any individual designated in §1.56(c) more than three months prior to the filing of this Information Disclosure Statement.
6. ☒ This is a continuation/divisional/continuation-in-part application under 37 CFR § 1.53(b).
- (Check appropriate Items 6a and/or 6b)*
- 6a. ☒ Copies of the publications listed on the attached Form PTO-1449 which were previously cited in prior application Serial No. 10/229,011, filed on August 28, 2002, and which is relied on for an earlier effective filing date for the subject application under 35 U.S.C. § 120, have been omitted pursuant to 37 CFR § 1.98(d).
- 6b. ☐ Copies of the publications listed on the attached Form PTO-1449 which were not previously cited in prior application Serial No. \_\_\_, filed on \_\_\_, and

which is relied on for an earlier effective filing date for the subject application under 35 U.S.C. § 120, are provided herewith.

7. ☐ This is a continuation/divisional application under 37 CFR § 1.53(d) or a Request for Continued Examination under 37 CFR 1.114.

*(Check either Item 7a or 7b)*

- 7a. ☐ The Issue Fee has not been paid.  
7b. ☐ A Petition to Withdraw from issue under 37 CFR § 1.313(c) is filed concurrently herewith or has been granted. A continuation/divisional application under 37 CFR § 1.53(d) or a Request for Continued Examination under 37 CFR 1.114, after payment of the Issue Fee, is proper in accordance with 37 CFR § 1.53(d)(1)(ii) or 37 CFR 1.114(a), respectively.

8. ☐ This is a Supplemental Information Disclosure Statement.

*(Check either Item 8a or 8b)*

- 8a. ☐ This Supplemental Information Disclosure Statement under 37 CFR § 1.97(f) supplements the Information Disclosure Statement filed on \_\_\_\_\_. A bona fide attempt was made to comply with 37 CFR § 1.98, but inadvertent omissions were made. These omissions have been corrected herein. Accordingly, additional time is requested so that this Supplemental IDS can be considered as if properly filed on \_\_\_\_\_.  
8b. ☐ This Supplemental Information Disclosure Statement is timely filed within one (1) month of the Notice under 37 CFR § 1.97 and 1.98, mailed \_\_\_\_\_.

9. ☐ In accordance with 37 CFR § 1.98, a concise explanation of what is presently understood to be the relevance of each non-English language publication is:

*(Check appropriate Items 9a, 9b, 9c and/or 9d)*

- 9a. ☐ satisfied because all non-English language publications were cited on the enclosed "English language version of the search report or action which indicates the degree of relevance found by the foreign office". (See MPEP § 609, Minimum Requirements for an Information Disclosure Statement, Part A(3): Concise Explanation of Relevance, 8th Ed.)  
9b. ☐ set forth in the application.  
9c. ☐ satisfied because an English language translation (complete or relevant portion(s)) is attached to each non-English language publication.  
9d. ☐ enclosed as Attachment 1(e), hereto.

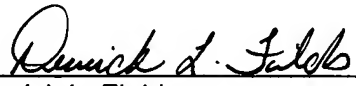
10. No admission is made that the information cited in this Statement is, or is considered to be, material to patentability nor a representation that a search has been made (other than search report(s) from a counterpart foreign application or a PCT International Search Report, if submitted herewith). 37 CFR §§ 1.97(g) and (h).

11. The Commissioner is authorized to credit any overpayment or charge any additional fee required under 37 CFR § 1.17 for this Information Disclosure Statement to Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Dated: January 30, 2004  
1201 New York Ave., N.W., Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501

By:   
Derrick L. Fields  
Registration No. 50,133

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY DOCKET NO. 837.1175D3	APPLICATION NO.
<b>LIST OF REFERENCES CITED BY APPLICANT</b> <i>(Use several sheets if necessary)</i>		FIRST NAMED INVENTOR Shigeki WATANABE	
		FILING DATE January 30, 2004	GROUP ART UNIT

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA	5,568,583	10/1996	Akasaka et al.			
	AB	5,550,671	08/1996	Simpson et al.			
	AC	5,386,314	10/1996	Jopson			
	AD	5,532,868	07/1996	Gnauck et al.			
	AE	5,365,362	11/1994	Gnauck et al.			
	AF	5,777,770	07/1998	Naito			

**FOREIGN PATENT DOCUMENTS**

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB- CLASS	<u>TRANSLATION</u> YES NO	
	AG	8-95106	04/1996	Japan				
	AH	7-301830	11/1995	Japan				
	AI	5-323396	12/1993	Japan				
	AJ	60-173504	09/1985	Japan				
	AK	62-159104	07/1987	Japan				

**OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)**

							<u>TRANSLATION</u> YES NO	
	AL	Watanabe et al., "Simultaneous Wavelength Conversion and Optica Phase conjugation of 200 Gb/s (5x40 Gb/s) WDM Signal using a highly conlinear fiber four-wave mixer" September 1997, Conference Publication No. 448, pp 1-4						

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY DOCKET NO. 837.1175D3	APPLICATION NO.
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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	BB	6,304,348	10/2001	Watanabe			
	BC	6,307,984	10/2001	Watanabe			
	BD	6,504,972	01/2003	Watanabe			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO
	BE	0987583	03/200	Europe			

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

	BF	S. Watanabe, M. Shirasaki, "Exact Compensation for Both Chromatic Dispersion and Kerr Effect in a Transmission Fiber Using Optical Phase Conjugation," Journal of Lightwave Technology, Vol. 14, No. 3, March 1996, pps. 243-248
	BG	Laser Study" (in Japanese), The Society of Laser Engineers (30 06 96), Vol. 24, No. 6, pps. 649-655
	BH	S. Watanabe, "Cancellation of Four-Wave Mixing in a Single-Mode Fiber by Midway Optical Phase Conjugation," Optics Letters, Vol. 19, No. 17, September 1, 1994, pps. 1308-1310
	BI	Inoue, "Suppression Technique for Fiber Four-Wave Mixing Using Optical Multi-Demultiplexers and a Delay Line", March 1993, Journal of Lightwave Technology, Vol. 11, No. 33, pp. 455-461
	BJ	Hedekvist et al., "Impact of Spectral Inverter Fiber Length on Four Wave Mixing Efficiency and Signal Distortion", September 1995, Journal of Lightwave Technology, Vol. 13, No. 9, pp. 1815-1819
	BK	Kikuchi et al., "Design of Highly Efficient Four-Wave Mixing Devices Using Optical Fibers", August 1994, IEEE Photonics Technology Letters, Vol. 6, No. 8, pp. 992-994
	BL	Inoue et al. "Wavelength Conversion Experiment Using Fiber Four-Wave Mixing", January 1992, IEEE Photonics Technology Letters, Vol. 4, No. 1, pp. 69-72
	BM	Moore, "A model for diffraction-limited high-power multimode fiber amplifiers using seeded stimulated brillouin scattering phase conjugation", June 2001, IEEE Journal of quantum electronics, pp 781-789

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.